DOCUMENT RESUME

ED 169 687 EC 113 998

TITLE	Careers in Science for the Handicapped Project: Training Manual.
INSTITUTION	California Univ., Irvine. Career Planning and Placement Center.
SPONS AGENCY	National Science Foundation, Washington, D.C.
PUB DATE	Aug 78
NOTE	34p.; For Videotape of "Careers in Science for the Handicapped" See availability information; Parts may be marginally legible due to light type
AVAILABLE FROM	Career Planning and Placement Center, University of California, Irvine, California 92717 (Videotape Rental, $5.50 [35 minutes, color, 3/4"])
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	Biology; *Career Planning; College Students; Computer Science Education; Engineering Education; *Outreach Programs; *Physically Handicapped; *Science Careers; Secondary Education; *Videotape Recordings; Workshops

ABSTRACT

The two-phase project was designed to expose physically handicapped students to information concerning the feasibility of preparing for, entering, and pursuing scientific careers. The first phase consisted of a series of outreach visits (conducted by physically handicapped college students enrolled in science programs and the project coordinator to participating junior/senior high schools). The second phase involved 50 project participants in a 6-week course of mini-workshops to enable the students to learn about academic programs and career options in three major science disciplines (biology, engineering, and computer sciences). A large portion of the document consists of appendixes, such as a table of the suggested time frame for activities and a student posttest. Portions of each mini-workshop are available on videotape. (PHP)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED169687

"CAREERS IN SCIENCE FOR THE HANDICAPPED"
PROJECT
TRAINING MANUAL

UNIVERSITY OF CALIFORNIA, IRVINE
CAREER PLANNING AND PLACEMENT CENTER
and
SCHOOL OF BIOLOGICAL SCIENCES

Supported By
A Grant From The National Science Foundation
August, 1978

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Univ. of Calif. Irvine

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

EC113998

CONTENTS

		Page
I.	Introduction	1
II.	Project Design	2
	A. Outreach Panel Discussions	2
	B. Selection of Participants	3
	C. Careers in Science Mini-Campus Program	3
	1. Introductory Session	4
	2. Academic Programs	4
	3. Career Options Workshops	5
	4. Closing Session	6
	5. Videotape Production	6
	6. Publication	6
III.	Evaluation Plan	6
IV.	Conclusions	7
V.	Appendices	8
	A. Table 1, Suggested Time Frame of Activities	9
	B. Application for Handicapped in Science at UC Irvine - High School	11
	Application for Handicapped in Science at UC Irvine - Community College	12
	Handicapped in Science Program - Letter	13
	C. Table 2, Careers in Science Mini-Campus Plan	14
	D. Pre-Test (students, faculty, counselors, and members of the business community)	15
	E. Post-Test (students)	19
	F. Table 3, Responses to Pre- and Post-Tests for Student Participants.	20

I. INTRODUCTION

The Career Planning and Placement Center, in cooperation with the School of Biological Sciences, the School of Engineering and the Department of Information and Computer Science, of the University of California, Irvine, developed and tested a model program to attract physically handicapped high school and community college students to scientific careers. We believe that successful implementation of this model program will assist in solving some of the problems encountered by the physically handicapped that prevent them from considering and preparing for scientific careers. Problems addressed by this project included: incorrect assumptions about actual limitations an individual's handicap places on success in particular jobs; a lack of accurate information about careers in science; discouragement from school faculty and advisement staff from taking scientific course work; and a lack of awareness of scientific career opportunities for handicapped persons.

Through outreach visits to high schools and community colleges and by attending workshops on the UC, Irvine campus, the participants were provided information about scientific careers and the opportunity to explore their own career options. They met with University faculty, employers and physically handicapped students who served as role models and who were already pursuing University academic programs in science. At the same time, faculty, advisement staff, and employers involved in the project had the opportunity to gain a fuller understanding of the actual potential of physically handicapped students for entering and pursuing scientific careers.

To assist other institutions conducting similar projects in their own communities, we have prepared this manual. The manual outlines the step by step implementation of the project and provides suggestions to others desiring to replicate a version of this model program for the physically handicapped.

II. PROJECT DESIGN

The "Careers in Science for the Handicapped" project was conducted in two phases, each designed to expose physically handicapped students to information concerning the feasibility of preparing for, entering and pursuing scientific careers. In addition, each phase of the project was designed to provide for personal interaction between the student participants and University faculty, students enrolled in University science programs, including those with physical handicaps, employers from the community and UCI Career Planning and Placement staff. As indicated in Table 1*, implementation of the project took place over a six month period beginning in October, 1977 and ending in March, 1978. The project participants were selected in the manner described in Section B and included physically handicapped high school juniors and seniors and first year community college students from campuses accessible to UCI. This included students from three high school districts and one community college in Orange County. The first phase of the project consisted of a series of outreach visits, conducted by UCI physically handicapped students enrolled in science programs and the project coordinator to the participating school compuses. The second phase of the project involved project participants in a six-week Careers in Science Mini-Campus Program at UCI. This program consisted of a series of workshops conducted by University science faculty and advisors, community employers from scientific businesses and industry, University students pursuing science programs, including physically handicapped students, and UCI Career Planning and Placement Center advisement staff.*(see Appendix A)

A. Outreach Panel Discussions

During Fall Quarter, the project coordinator worked through the counseling offices of three high school districts and one community college selected to participate in the model program and scheduled outreach panel discussions at individual school campuses. Each panel consisted of two UC Irvine handicapped students in programs leading to scientific careers including the biological sciences, computer sciences and engineering and the project coordinator. The purpose of these visits was twofold: to provide role models for the participants and to encourage them to attend the Mini-Campus program during the project's second phase. (If feasible, an interpreter should accompany each panel for deaf and hearing impaired students.) During these

panel discussions, the students gave a brief overview of their career aspirations and, as role models, shared information regarding their own educational experiences as well as special problems they have encountered. At the close of each panel discussion, the project coordinator encouraged those attending to apply for the Mini-Campus program, reviewed what the participants should expect to encounter and distributed applications for participation in the program.

B. Selection of Participants

High school juniors and seniors and first year community college students were selected to participate in the Mini-Campus activities. The UC Irvine project coordinator worked closely with high school and community college counselors/advisors to select participants. Specific requirements for participation included:

1. Enrollment in pre-college high school or first year community college science courses.
2. A "B" (3.0) G.P.A. in science courses attempted.
3. A letter of recommendation from a science teacher.

Project staff should work closely with high school and community college advisors during the application and selection process and attempt to select a representative sample of students with a variety of physical handicaps (see Appendix B - copies of application forms & letter).

C. Careers in Science Mini-Campus Program

The Mini-Campus program was designed to provide project participants with first hand information concerning academic programs leading to scientific careers, career options in selected areas of science, the physical requirements of specific occupations as they relate to particular handicaps and information concerning financial aid and special services available to handicapped individuals pursuing college or university academic programs. For purposes of project demonstration, three general areas of science or scientific disciplines were selected; these included: biological sciences, engineering, and computer science. At the same time, the project participants had an opportunity to tour laboratory and other facilities and to experience the

University environment. As illustrated in Table 2* the program opened with an introductory session for all participants, followed by workshops focusing on scientific academic programs during the second and third weeks, career options workshops and laboratory tours during the fourth and fifth weeks and ending with a session for all participants during the sixth week dealing with financial aid, special admissions and current services and legislation regarding employment of the handicapped. Each session was no more than one-half day in length. Transportation to the campus was provided for those participants who would otherwise be unable to attend, including lift vans for the severely handicapped confined to wheelchairs *(see Appendix C).

1. Introductory Session. The program opened with an introductory session for all participants designed to encourage participants to consider careers in science. Keynote speakers were drawn from among distinguished UCI science faculty and presented information on current scientific projects and activities in language suitable for the level of the participants. At the close of this session, the participants met with predesignated UCI students pursuing academic programs in science who served as role models and guides to small groups of participants throughout the program.

2. Academic Programs. The second and third week sessions of the program focused on three general scientific disciplines or tracts including the biological sciences, engineering and computer science. Since the three workshops were repeated during the two week period, participants had an opportunity to choose two of the three to attend or had the option of choosing only one. These workshops were conducted by prominent UCI faculty from each of the major scientific disciplines included within the project's scope, faculty advisement staff and UCI physically handicapped students currently enrolled in scientific academic programs. The content of these workshops included an outline of academic fields within each general scientific discipline, a discussion of the physical requirements necessary for completing the academic and laboratory course work, a discussion of advisable pre-college preparation and examples of the types of assignments they might expect to encounter as four-year college or university students in programs

leading to careers in science. Examples of fields covered in the biological sciences include physiology, developmental and cell biology, biochemistry and biophysics. In engineering, academic information was provided for civil, mechanical, electrical, and environmental specialization. In computer science, subject areas covered included digital computing, programming languages, computer design, and formal models.

Following these panel discussions, the participants had the opportunity to meet in small groups with UCI students and faculty to discuss individual questions, express concerns about capacity to succeed in the particular academic program, and to provide feedback about their particular needs as physically handicapped students.

3. Career Options Workshops. During the fourth and fifth weeks of the Mini-Campus program, workshops were conducted focusing on career options available for each of the three major scientific disciplines or tracts included in the project. It was expected that students would attend those workshops corresponding to those selected for academic information although allowances for exceptions were made. Each workshop was conducted by a panel consisting of a UCI faculty member, a member of the Career Planning and Placement Center's advisement staff, and at least three employment representatives from industries, agencies, and institutions having had experience in employing physically handicapped individuals in scientific occupations or career fields. The content of the workshops for each major scientific discipline or tract included a discussion of possible career options and the necessary undergraduate and graduate or professional school preparation required for entry level positions in each option; a discussion of the physical requirements connected with the available options and information regarding existing and planned special adaptions that would allow physically handicapped individuals to perform functions not otherwise possible; and a discussion of future occupational and employment trends with particular emphasis on local data. Each panel discussion was followed by tours of laboratories and scientific research facilities on the UCI campus.

4. Closing Session. The program closed with a combined session for all participants dealing with information regarding sources of financial aid for college and university study, special services and special admissions programs for physically handicapped students, and information regarding current laws pertaining to affirmative action and hiring of handicapped individuals in education, business, industry, and government. This session was conducted by a panel consisting of the UCI Assistant Dean of Handicapped Student Services, UCI's Director of Financial Aid and representatives of the California State Department of Rehabilitation.

5. Video Tape Production. For the purpose of replication in other settings and for use by physically handicapped students on high school and community college campuses, portions of each Mini-Campus workshop were video taped and edited into a 35 minute production. Copies were made available for distribution.

6. Publication. To augment the information discussed at both the outreach visits and the Mini-Campus workshops a publication, "A Career in Science: Is It For You?" was prepared for later distribution. A limited number of braille editions were made available to the blind or visually impaired. The guide contains information regarding academic programs and career fields in the biological sciences, computer science and engineering, and addresses the question of physical requirements for each of these fields. In addition, the guide contains information about special admissions and financial aid procedures available to the handicapped.

III. EVALUATION PLAN

1. To determine the extent to which program participants are better informed about scientific careers as a result of this project, pre and post questionnaires were administered. The pre-test was designed to elicit the participants' current understanding of science career options, required academic preparation, and to assess their attitudes toward the feasibility of scientific careers. The post-test, administered after the Careers in Science workshops, elicited responses to items similar to those in the pre-questionnaire.

2. To measure changes in attitudes by faculty and employer representatives toward the feasibility of scientific careers for the physically handicapped, pre and post questionnaires were utilized. In addition, written comments were requested regarding program design and procedures from handicapped student participants and those at all levels of the project operation (see Appendices D, E and F).

3. Also, at one and two year intervals, following completion of the project, handicapped participants will be surveyed to determine whether or not they choose academic programs leading to scientific careers.

IV. CONCLUSIONS

Results of the project were extremely positive. Data gathered from the student participants indicated a significant increase in the level of awareness of science career options, academic preparation, and potential for success after completion of the workshop series. In addition, the students felt better prepared for scientific study at the college or university level. Finally, through interaction between student participants, University faculty and staff and employer representatives, a significantly increased awareness of the actual capabilities of the physically handicapped in the pursuit of scientific careers was realized.

V. APPENDICES

Appendix A	Table 1 - Suggested Time Frame of Activities
Appendix B	Application for Handicapped in Science at UC Irvine - High School Application for Handicapped in Science at UC Irvine - Community College Handicapped in Science Program - Letter
Appendix C	Table 2 - Careers in Science Mini-Campus Plan
Appendix D	Pre-Test (students, faculty, counselors and members of the business community)
Appendix E	Post-Test (students)
Appendix F	Table 3, responses to Pre- and Post-Tests for student participants

TABLE 1

Suggested Time Frame of Activities

OCTOBER, 1977	Project Coordinator met with high school districts and community college special education advisors to set dates for outreach visits and to review participant application and selection procedures for both project phases.
	Preparation of the handicapped student career guide began.
LATE OCTOBER - NOVEMBER, 1977	UCI handicapped science students conducted outreach visits accompanied by the Project Coordinator.
	Project Coordinator contacted faculty, community employers and UCI science students to finalize Mini-Campus program panels.
	Screening of applications and selection of participants for Mini-Campus initiated.
	Invitations and program information sent to Mini-Campus panel discussion leaders and to UCI science student guides.

DECEMBER, 1977	Participant selection process completed.
	Program activities finalized.
JANUARY - FEBRUARY, 1978	Implementation of six-week Mini-Campus program.
	Pre- and Post-Tests administered.
	Data analysis of the tests.
JUNE, 1978	Video tape productions of workshops edited and completed.
	Publication of handicapped student career guide completed.
	Evaluation and final project report completed.

Career Planning and Placement Center
University and Student Affairs
UC Irvine

APPLICATION FOR HANDICAPPED IN SCIENCE PROGRAM AT UC IRVINE

High school applicants must be at the junior or senior level in a science discipline.

Name: _____

Address: _____

City: _____ Zip Code: _____

Telephone: _____

1. Junior or senior? _____

2. What field(s) of science are you most interested in?

   _____

3. Are you enrolled in pre-college science courses? _____

   If so, please indicate the course titles (include those you have taken or are currently enrolled in).

   _____

   _____

   _____

4. Do you have a "B" average in your science courses? _____

5. Can you obtain a letter of recommendation from a science teacher? _____

6. Can you devote 1/2 day per week for six weeks to participate in the Mini-Campus Program at UC Irvine? _____

Write a brief summary describing why you wish to participate in the Handicapped in Science Program at UCI.

_____

_____

_____

Career Planning and Placement Center
University and Student Affairs
UC Irvine

APPLICATION FOR HANDICAPPED IN SCIENCE PROGRAM AT UC IRVINE

Community college applicants must be first-year students pursuing science curriculum.

Name: _____

Address: _____

City: _____ Zip Code: _____

Telephone: _____
(Home) (Office)

1. What field(s) of science are you interested in?

   _____

2. What is your grade point average in your college science courses? _____

3. What was your grade point average in science courses in high school? _____

4. Can you obtain a letter of recommendation from a science professor? _____

5. Can you devote 1/2 day per week for six weeks to participate in the Mini-Campus Program at UC Irvine? _____

Write a brief summary why you wish to participate in the Handicapped in Science Program.

_____

_____

_____

_____

UNIVERSITY OF CALIFORNIA, IRVINE

BERKELEY · DAVIS · IRVINE · LOS ANGELES · RIVERSIDE · SAN DIEGO · SAN FRANCISCO · SANTA BARBARA · SANTA CRUZ

CAREER PLANNING & PLACEMENT CENTER IRVINE, CALIFORNIA 92717

August 25, 1977

HANDICAPPED SCIENCE MAJORS

RE: Handicapped in Science Program

The University of California, Irvine, through the Career Planning and Placement Center, University and Student Affairs, will conduct a program for handicapped students in science beginning in October, 1977. This program will consist of (1) Outreach Visits to high schools and community colleges to encourage students to consider pursuing four-year college degrees in science, and (2) a series of Mini-Campus Workshops to enable students to learn about academic programs and career options in three major science disciplines (Biology, Engineering, and Computer Sciences) from faculty and employers.

The following is an outline of the program:

1. Fifty junior/senior high school and first-year community college students will be selected to participate in six (6) workshops which will be conducted over a six-week period in the spring of 1978 at UC Irvine.

2. The students will participate in discussion with:

   a. Professionals from business, industry, and government.

   b. University science faculty members.

   c. University science students including handicapped students.

   d. Career Planning and Placement Center advisors.

3. Each workshop will be approximately one-half day in length.

4. Requirements:

   a. Enrollment in pre-college high school or first-year community college science courses.

   b. "B" or 3.0 GPA in science courses.

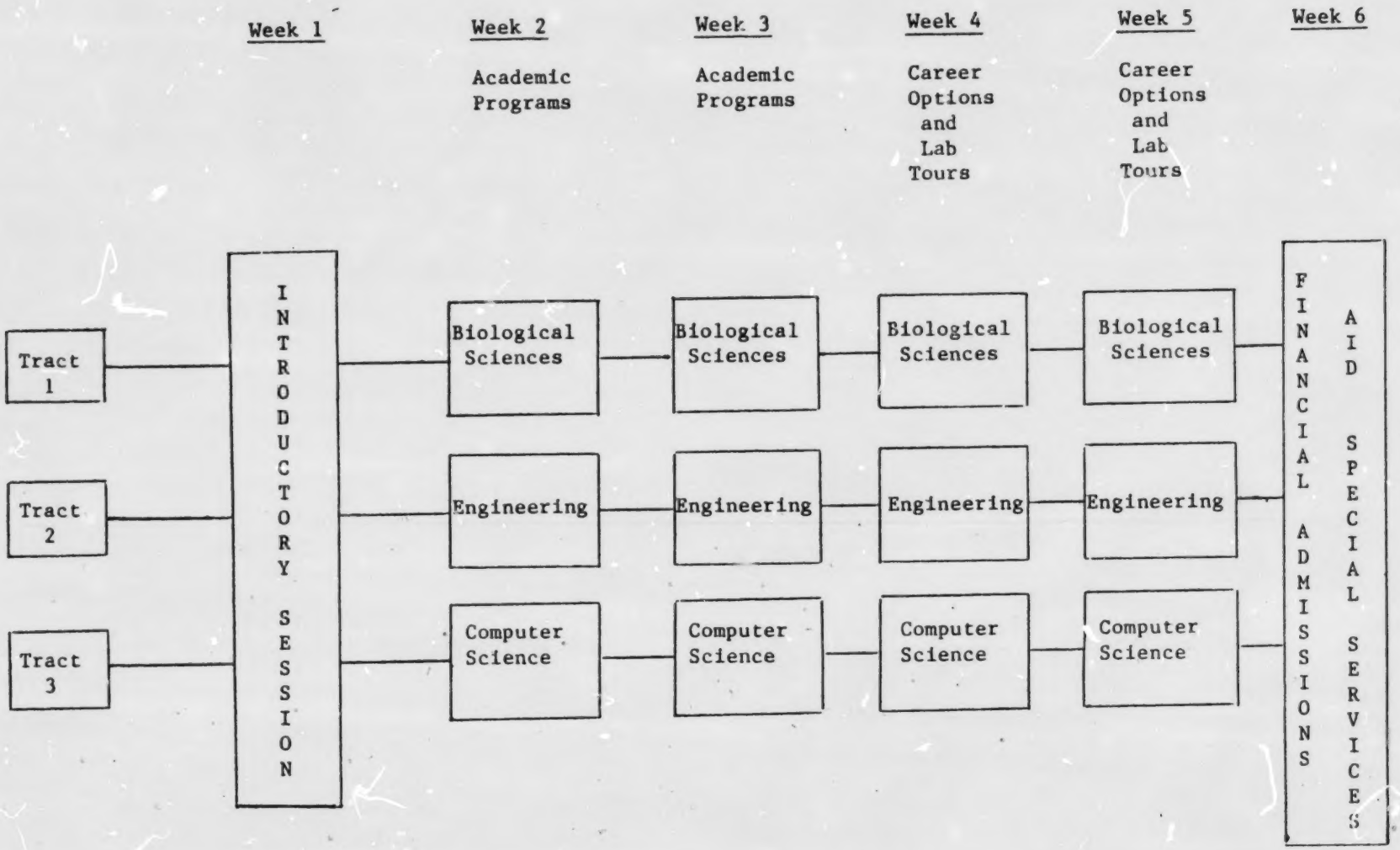
   c. Letter of recommendation from a science teacher.

If you are interested in participating in this program, please complete the attached application and submit it to your counselor. Your counselor will notify you regarding the date, time and location of the Outreach Visits to your campus.

Attachment

TABLE 2

CAREERS IN SCIENCE MINI-CAMPUS PLAN



PRE - TEST

1. Your Name: _____

2. Home Address: _____ (1-5)
(Street)

_____
(City) (State) (Zip) (6-10)

3. Your Age: (Circle one) 13 14 15 16 17 18 19
20 21 22 23 24 25 (11-12)

4. Name of School or College you currently attend: (Check one)

Costa Mesa High School District_____ Orange Coast College_____

Fountain Valley High School _____ University High School _____

Fullerton Unified School District_____Other(specify_____) _____

Golden West College _____ (13)

5. Current Class Standing: (Check one)

Freshman_____ Junior_____

Sophomore_____ Senior_____ (14)

6. How well do you feel your High School science courses prepared you to attend a College or University? (Check one)

Excellent_____; Good_____; Fair_____; Poor;_____ (15)

7. How aware are you of the requirements for a baccalaureate degree in the following majors: (Circle the number corresponding to your response for each of the following majors).

Major	Very Aware	Aware	Somewhat Aware	Not Aware
a) Biological Sciences	4	3	2	1
b) Computer Sciences	4	3	2	1
c) Engineering	4	3	2	1
d) Physical Sciences (Chemistry, Math and Physics)	4	3	2	1

(16-19)

8. How difficult do you feel it is for a handicapped person to perform in the sciences in the following areas at a college or university? (Circle the number corresponding to your response)

	Easy	Not Difficult	Difficult	Impossible
a) General course requirements	4	3	2	1
b) Laboratory work	4	3	2	1
c) Library work	4	3	2	1
d) Science course requirements	4	3	2	1

(20-23)

9. Indicate your interest in the following areas; (Circle the number that corresponds to your response.)

	Very Interested	Interested	Somewhat Interested	Not Interested
a) Attending sessions in a science information program at UC Irvine:				
- In Biology	4	3	2	1
- In Computer Science	4	3	2	1
- In Engineering	4	3	2	1
- In Physical Science (Chemistry, Math, Physics)	4	3	2	1
b) College majors at UC Irvine:				(24-27)
- Biological Sciences	4	3	2	1
- Computer Sciences	4	3	2	1
- Engineering	4	3	2	1
- Physical Sciences (Chemistry, Math, Physics)	4	3	2	1
c) Majoring in the sciences at a College or University.	4	3	2	1

(28-31)

(32)

10. How helpful do you feel talking to the following people would be in your decision to major in science?

	Very Helpful	Helpful	Somewhat Helpful	Not Helpful
a) Handicapped science majors in college.	4	3	2	1
b) Faculty who teach in the sciences.	4	3	2	1
c) Handicapped people working in business or industry.	4	3	2	1
d) Employers in business or industry	4	3	2	1
e) College staff involved in support services for the handicapped.	4	3	2	1

(33-36)

11. How helpful would the following sources of information be in influencing your decision to major in the sciences at a University.

	Very Helpful	Helpful	Somewhat Helpful	Not Helpful
a) Laboratory tours	4	3	2	1
b) Vocational rehabilitation assistance for education	4	3	2	1
c) Support services to the handicapped	4	3	2	1
d) Admissions information	4	3	2	1
e) Financial Aid information	4	3	2	1
f) Housing information	4	3	2	1

(37-40)

12. Please use the space provided to share any thoughts you have about yourself -- estimate of your success in a College or University environment.

_____

_____

_____

_____

(41-43)

UC IRVINE FACULTY PRE-TEST

1. Name: _____ (1-5)

2. School or Department: (Check one)
   Biological Sciences _____ Physical Science _____
   Computer Sciences _____ Other(Specify: _____) _____
   Engineering _____ (6)

3. How well do you feel that high school science courses prepare handicapped students to attend UC Irvine?(Check one)

   Very well_____; Well_____; Fairly_____; Poorly_____ (7)

4. How aware are the handicapped students you have known at UC Irvine of the requirements for a baccalaureate degree in the following majors? (Circle the number corresponding to your response for each of the following majors)

Major	Very Aware	Aware	Somewhat Aware	Aware	Does not Apply
a) Biological Sciences	4	3	2	1	0
b) Computer Sciences	4	3	2	1	0
c) Engineering	4	3	2	1	0
d) Physical Sciences (Chemistry, Math and Physics)	4	3	2	1	0

(8-11)

5. How difficult do you feel it is for a handicapped person to perform in the sciences in the following areas at UC Irvine? (Circle the number corresponding to your response.)

	Easy	Not Difficult	Difficult	Impossible
a) General course requirements	4	3	2	1
b) Library Work	4	3	2	1
c) Science course requirements	4	3	2	1
d) Laboratory work	4	3	2	1
e) Use of computer facility	4	3	2	1

(12-16)

6. How helpful do you feel talking to the following people would be to a handicapped student deciding whether to major in the sciences? (Circle the number corresponding to your response)

	Very Helpful	Helpful	Somewhat Helpful	Not Helpful
a) Handicapped science majors in college	4	3	2	1
b) Faculty who teach in the sciences	4	3	2	1
c) Handicapped people working in business or industry	4	3	2	1
d) Employers in business or industry	4	3	2	1
e) College staff involved in support services for the handicapped	4	3	2	1

(17-21)

7. How interested do you think handicapped students would be in attending sessions in a science information program in the following areas. (Circle the number that corresponds to your response.)

		Very Interested	Interested	Somewhat Interested	Not Interested
a)	Biological Sciences	4	3	2	1
b)	Computer Sciences	4	3	2	1
c)	Engineering	4	3	2	1
d)	Physical Sciences (Chemistry, Math, Physics)	4	3	2	1

(22-25)

8. How interested do you think handicapped students would be in the following majors at UC Irvine? (Circle the number corresponding to your response)

		Very Interested	Interested	Somewhat Interested	Not Interested
a)	Biological Sciences	4	3	2	1
b)	Computer Sciences	4	3	2	1
c)	Engineering	4	3	2	1
d)	Physical Sciences (Chemistry, Math, Physics)	4	3	2	1

(26-29)

9. How helpful do you think the following services of information would be in influencing the decision of a handicapped student to major in the sciences at UC Irvine? (Circle the number that corresponds to your response.)

		Very Helpful	Helpful	Somewhat Helpful	Not Helpful
a)	Campus tours	4	3	2	1
b)	Tours of laboratories and computer facility	4	3	2	1
c)	Admissions information	4	3	2	1
d)	Financial aid information	4	3	2	1
e)	Housing information	4	3	2	1
f)	Transportation information	4	3	2	1
g)	Support services to the handicapped	4	3	2	1
h)	Vocational rehabilitation assistance for education	4	3	2	1

(30-37)

10. Please use the space below to make any comments regarding a handicapped student's chances of success at UC Irvine

_____

_____

_____

(38-40)

HIGH SCHOOL TEACHERS AND COUNSELORS PRE-TEST

1. Name: _____ (1-5

2. Position (Subject area): _____ (6-10)

3. School: (Check one)

Costa Mesa High School District	_____	Santa Ana Unified School Dist.	_____
Fountain Valley High School	_____	Tustin Unified School District.	_____
Fullerton Unified School Dist.	_____	University High School	_____
Orange Unified School Dist.	_____	Irvine High School	_____

Other: (specify _____) _____ (11)

4. How well do you feel that science courses at your high school prepare handicapped students to attend a college or university? (Check one)

Very well_____; Well_____; Fairly_____; Poorly;_____ (12)

5. How aware are handicapped students at your high school of the requirements for a baccalaureate degree in the folowing majors? (circle the number corresponding to your response for each of the following majors.)

Major	Very Aware	Aware	Somewhat Aware	Not Aware
a) Biological Sciences	4	3	2	1
b) Computer Sciences	4	3	2	1
c) Engineering	4	3	2	1
d) Physical Sciences (Chemistry, Math and Physics)	4	3	2	1

(13-16)

6. How difficult do you feel it is for a handicapped student to perform in the sciences in the following areas at a college or university? (Circle the number corresponding to your response.)

	Easy	Not Difficult	Difficult	Impossible
a) General course requirements	4	3	2	1
b) Library work	4	3	2	1
c) Science course requirements	4	3	2	1
d) Laboratory work	4	3	2	1
e) Use of computer facility	4	3	2	1

(17-21)

7. Indicate the interest of handicapped students at your high school in the following areas. (Circle the number that corresponds to your response.)

	Very Interested	Interested	Somewhat Interested	Not Interested
a) Attending sessions in a science information program at UC Irvine:				
-In Biology	4	3	2	1
-In Computer Science	4	3	2	1
-In Engineering	4	3	2	1
-In Physical Science (Chemistry, Math, Physics)	4	3	2	1

(22-25

		Very Interested	Interested	Somewhat Interested	Not Interested
b)	College Majors at UC Irvine:				
	-Biological Sciences	4	3	2	1
	-Computer Sciences	4	3	2	1
	-Engineering	4	3	2	1
	-Physical Sciences (Chemistry, Math, Physics	4	3	2	1
					(26-29)
c)	Majoring in the sciences at a College or University.	4	3	2	1
					(30)

8. How helpful do you feel talking to the following people would be to a handicapped student deciding whether to major in science?

		Very Helpful	Helpful	Somewhat Helpful	Not Helpful
a)	Handicapped science majors in college.	4	3	2	1
b)	Faculty who teach in the sciences.	4	3	2	1
c)	Handicapped people working in business or industry	4	3	2	1
d)	Employers in business or industry	4	3	2	1
e)	College staff involved in support services for the handicapped	4	3	2	1
					(31-35)

9. How helpful would the following sources of information be in influencing the decision of handicapped students at your high school to major in the sciences at a college or university? (Circle the number that applies to your response)

		Very Helpful	Helpful	Somewhat Helpful	Not Helpful
a)	Campus tours	4	3	2	1
b)	Tours of laboratories and computer facilities	4	3	2	1
c)	Admissions information	4	3	2	1
d)	Financial information	4	3	2	1
e)	Housing information	4	3	2	1
f)	Transportation information	4	3	2	1
g)	Support services to the handicapped	4	3	2	1
h)	Vocational rehabilitation assistance for education	4	3	2	1
					(36-43)

10. Please use the space below to make any comments regarding a handicapped student's chances of success in a college or university environment.

_____

_____

_____

(44-46)

MEMBERS OF THE BUSINESS COMMUNITY PRE-TEST

1. Name: _____ (1-5)

2. Occupation: _____ Title: _____ (6-10

3. Place of employment: a)Name of company _____ (11-15)

b)Address _____
(Street)

_____
(City) (Zip) (16-20)

4. How aware are you of the requirements for a baccalaureate degree in the following majors? (Circle the number corresponding to your response for each of the following majors.

	Very Aware	Aware	Somewhat Aware	Not Aware
a) Biological Sciences	4	3	2	1
b) Computer Sciences	4	3	2	1
c) Engineering	4	3	2	1
d) Physical Sciences (Chemistry, Math, Physics)	4	3	2	1

(21-24)

5. How difficult do you feel it would be for a handicapped person to perform in the sciences in the following areas in business or industry? (Circle the number corresponding to your response.)

	Easy	Not Difficult	Difficult	Impossible
a) General course requirements	4	3	2	1
b) Library work	4	3	2	1
c) Science course requirements	4	3	2	1
d) Laboratory work	4	3	2	1
e) Use of computer facility	4	3	2	1

(25-29)

6. Based on your projected employment needs, indicate your interest in hiring handicapped college graduates with the following majors. (Circle the number that corresponds to your response.

	Very Interested	Interested	Somewhat Interested	Not Interested
a) Biological Sciences	4	3	2	1
b) Computer Sciences	4	3	2	1
c) Engineering	4	3	2	1
d) Physical Sciences (Chemistry, Math Physics)	4	3	2	1

(30-33)

7. How helpful do you feel talking to the following people would be in a handicapped student's decision to major in Science? (Circle the number that correspons to your response)

	Very Helpful	Helpful	Somewhat Helpful	Not Helpful
a)Handicapped science majors in college	4	3	2	1
b)Faculty who teach in the sciences	4	3	2	1
c)Handicapped people working in business or industry	4	3	2	1
e)College staff involved in support services for the handicapped	4	3	2	1

(34-38)

8. How helpful do you think the following sources of information would be in influencing the decision of a handicapped student to major in the sciences? (Circle the number that corresponds to your response.)

		Very Helpful	Helpful	Somewhat Helpful	Not Helpful
a)	Campus tours	4	3	2	1
b)	Admissions and financial aid information	4	3	2	1
c)	Housing and transportation information	4	3	2	1
d)	Support services to the handicapped	4	3	2	1
e)	Vocational rehabilitation assistance for education	4	3	2	1
f)	Career opportunities after graduation	4	3	2	1

(39-44)

9. Please use the space below to make any comments regarding a handicapped person's chances of success; a)in a college or university environment and b) in business or industry.

a)_____

_____

b)_____

_____

(45-50)

POST-TEST

1. Your Name: _____ (1-5)

2. Home Address: _____
(Street)

_____ (6-10)
(City) (State) (Zip)

3. Your Age: (Circle one) 13 14 15 16 17 18 19

20 21 22 23 24 25 (11-12)

4. Name of School or College you currently attend: (Check one)

Costa Mesa High School District_____ Orange Coast College_____

Fountain Valley High School _____ University High School _____

Fullerton Unified School District_____Other(specify_____) _____

Golden West College _____ (13)

5. Current Class Standing: (Check one)

Freshman_____ Junior_____

Sophomore_____ Senior_____ (14)

6. How well do you feel your High School science courses prepared you to attend a College or University? (Check one)

Excellent_____; Good_____; Fair_____; Poor;_____ (15)

7. How aware are you of the requirements for a baccalaureate degree in the following majors: (Circle the number corresponding to your response for each of the following majors).

Major	Very Aware	Aware	Somewhat Aware	Not Aware
a) Biological Sciences	4	3	2	1
b) Computer Sciences	4	3	2	1
c) Engineering	4	3	2	1
d) Physical Sciences (Chemistry, Math and Physics)	4	3	2	1

(16-19)

8. How difficult do you feel it is for a handicapped person to perform in the sciences in the following areas at a college or university? (Circle the number corresponding to your response)

	Easy	Not Difficult	Difficult	Impossible
a)General course requirements	4	3	2	1
b)Laboratory work	4	3	2	1
c)Library work	4	3	2	1
d)Science course requirements	4	3	2	1

(20-23)

9. Indicate your interest in the following areas; (Circle the number that corresponds to your response.)

	Very Interested	Interested	Somewhat Interested	Not Interested
a) Attending sessions in a science information program at UC Irvine:				
- In Biology	4	3	2	1
- In Computer Science	4	3	2	1
- In Engineering	4	3	2	1
- In Physical Science (Chemistry, Math, Physics)	4	3	2	1
b) College majors at UC Irvine:				(24-27)
- Biological Sciences	4	3	2	1
- Computer Sciences	4	3	2	1
- Engineering	4	3	2	1
- Physical Sciences (Chemistry, Math, Physics)	4	3	2	1
c) Majoring in the sciences at a College or University.	4	3	2	1 (28-31)

(32)

10. How helpful do you feel talking to the following people would be in your decision to major in science?

	Very Helpful	Helpful	Somewhat Helpful	Not Helpful
a) Handicapped science majors in college.	4	3	2	1
b) Faculty who teach in the sciences.	4	3	2	1
c) Handicapped people working in business or industry.	4	3	2	1
d) Employers in business or industry	4	3	2	1
e) College staff involved in support services for the handicapped.	4	3	2	1

(33-36)

11. How helpful would the following sources of information be in influencing your decision to major in the sciences at a University.

	Very Helpful	Helpful	Somewhat Helpful	Not Helpful
a) Laboratory tours	4	3	2	1
b) Vocational rehabilitation assistance for education	4	3	2	1
c) Support services to the handicapped	4	3	2	1
d) Admissions information	4	3	2	1
e) Financial Aid information	4	3	2	1
f) Housing information	4	3	2	1

(37-40)

12. Please use the space provided to share any thoughts you have about yourself -- estimate of your success in a College or University environment.

_____

_____

_____

_____

(41-43)

TABLE 3

RESPONSES TO PRE- AND POST-TESTS FOR STUDENT PARTICIPANTS

Questions	N	Arithmetic Means*		Significance
		Pre	Post	
6. "How well do you feel your high school science courses prepared you to attend a college or university?"	11	2.7	3.0	.05
7. "How aware are you of the requirements for a baccalureate degree in the following majors:"				
a) Biological Sciences	10	2.0	3.3	.01
b) Computer Science	10	2.1	3.2	.01
c) Engineering	10	2.0	2.8	.05
d) Physical Sciences (Chemistry, Math, Physics)	10	2.2	2.9	.05
8. "How difficult do you feel it is for a handicapped person to perform in the sciences in the following areas at a college or university:"				
a) General course requirements	11	3.5	3.5	NS
b) Laboratory work	11	2.8	2.4	NS
c) Library work	10	3.2	3.2	NS
d) Science course requirements	10	3.1	3.0	NS
9. Indicate your interest in the following areas:				
a) Attending sessions in a science information program at UC Irvine:				
1. In Biology	11	3.3	3.2	NS
2. In Computer Science	10	3.3	3.3	NS
3. In Engineering	11	2.2	2.5	NS
4. In Physical Sciences (Chemistry, Math, Physics)	10	2.4	2.2	NS
b) College majors at UC Irvine:				
1. Biological Sciences	9	3.7	3.6	NS
2. Computer Science	10	2.8	3.3	.05
3. Engineering	9	1.9	2.2	NS
4. Physical Sciences (Chemistry, Math, Physics)	9	2.2	2.2	NS
5. Majoring in the sciences at a college or university	10	3.9	3.7	NS

TABLE 3 (CONTINUED)

RESPONSES TO PRE- AND POST-TESTS FOR STUDENT PARTICIPANTS

Questions	N	Arithmetic Means*		Significance
		Pre	Post	
10. "How helpful do you feel talking to the following people would be in your decision to major in science?"				
a) Handicapped science majors in college	10	3.7	3.6	NS
b) Faculty who teach in the sciences	10	3.6	3.7	NS
c) Handicapped people working in business or industry	10	3.5	3.7	NS
d) Employers in business or industry	10	3.5	3.7	NS
e) College staff involved in support services for the handicapped	10	3.6	3.7	NS
11. "How helpful would the following sources of information be in influencing your decision to major in the sciences at a university?"				
a) Laboratory tours	11	3.6	3.8	NS
b) Vocational rehabilitation assistance for education	11	3.1	3.5	NS
c) Support services to the handicapped	11	3.5	3.7	NS
d) Admission information	10	3.8	3.8	NS
e) Financial Aid information	11	3.5	3.9	NS
f) Housing information	11	3.5	3.3	NS

* Data collected and coded on the tests in Appendix F.